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M-Big-0/1
Roll No.

BB98

M. Tech. EXAMINATION, 2021

(Second Semester)

(B Scheme) (Re-appear)

(ME)

MEP502B

Non-Traditional Machining and Advanced Manufacturing

Time : 2½ Hours]

[Maximum Marks : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. (a) Discuss the parameters which necessitate the use of Non-traditional methods of machining. Give reasons for the justification on the basis of economics of machining.
(b) Briefly discuss the elements of CNC machines. Explain, how does CNC increase shop floor flexibility and reduce manufacturing lead time ?
2. A plate (240 mm × 240 mm × 24 mm) is to be face milled on the four lateral surfaces followed by a drill of 40 mm diameter at its face center. Write appropriate APT program for its machining. Include post processor statement also. Use suitable assumptions if needed.
3. (a) Discuss the process of Water Jet Machining (WJM). What are the process parameters of WJM ? Give the typical values of these parameters. Discuss some of its industrial applications.

M-Big-/2

- (b) Briefly discuss the process of Electron Beam Machining (EBM), its typical process parameters, application and limitation.
4. What are the circumstances which favour the use of Electro-chemical grinding ? Discuss the process and explain, how grinding improves its cutting efficiency ? Discuss its important industrial applications.
5. With neat sketch illustrate the elements of Coordinate Measuring Machines (CMM). Discuss its applications.
6. Briefly discuss the following :
- (i) Drilling Jigs
 - (ii) Milling Fixtures
7. Briefly discuss some of the recent developmental trends in machining technology. Name the technological factors that hinder the precision of non-traditional machining.
8. What are the applications of 3D scanning ? How 3D scanning helps in Rapid Prototyping ? Discuss the process of construction of digital footprints of objects through 3D scanning.